REMARKS

Claims 1-17 were presented for examination. Claims 1-17 were rejected. Entry of amendments to claims 1, 6 and 8 is respectfully requested. Support for the claim amendments is found in the specification as filed. Reconsideration of this application and allowance of all pending claims are hereby respectfully requested in view of the following amendments and remarks.

Claim Objections

Claim 8 has been objected to for informalities. Applicants request entry of amendments to claim 8 to address the Examiner's concerns and to overcome the objection. Reconsideration and withdrawal of the objection are respectfully requested.

Rejection under 35 U.S.C. § 102

Claims 1-2, 4-12, 14-15 and 17 have been rejected under 35 U.S.C. § 102 as anticipated by Lindholm (U.S. Patent No. 5,794,049). Applicants respectfully request reconsideration and allowance of the claims in view of the following amendments and arguments. For at least the reasons stated below, Lindholm does not disclose or suggest each and every element of the amended claims.

The present invention, as recited in claim 1 for example, relates to a device for executing compressed code. The compressed bytecode or native code is expanded on a method basis as to execute the expanded code. The expanded code serves as a temporary copy of the compressed code. The original compressed code is not erased but reused later. One advantage of this arrangement is that the compressed code may be generated offline (i.e., before execution) using a computationally intensive algorithm that achieves a high compression ratio. This

advantageously makes the compressed code smaller in size and enhances memory use efficiency. Another advantage of this arrangement is that an asymmetrical compression algorithm may be used with the claimed "program execution device" or other devices. Specifically, the algorithm may require less computation for expansion processing than compression processing.

Lindholm does not disclose or suggest the overwriting of expanded code as recited in independent claims 1 and 6. In contrast to the claimed invention, Lindholm discloses that only one of the compressed code and the expanded code for a given method is held in memory at any one time. That is, the expanded code and the compressed code belonging to the same method are not concurrently present (except during expansion or compression). When memory is available, the AN code is compiled into architecture specific (AS) code (e.g., native code) and executed. The AS code may also be compressed to conserve memory. The Lindholm system may use various compression criteria to determine which methods (or program code units) to compress or decompress at run-time (see, e.g., col. 7, lines 66-67 to col. 8, lines 1-4). This is clear from the compressed/uncompressed (C/U) field shown in method status table 200 of FIGS. 2 and 6 and the algorithm shown in FIG. 3 of Lindholm.

In the claimed invention, decompression of code overwrites expanded code as necessary. The compressed code is not erased. Therefore, even if the expanded code (or native code) is erased, the code can be regenerated from the compressed code. Accordingly, the memory capacity for holding the expanded code can be made smaller (e.g., the smallest capacity could be the result of the expansion of one unit or method). If Lindholm were to overwrite or erase code, then the method would be lost because there is only one representation of a given method (compressed or uncompressed) in the system at a time. Also, in Lindholm the initial state of the

system has expanded code, whereas in the present invention, the initial state includes compressed code.

Because Lindholm fails to disclose each and every element of the claimed invention, it cannot anticipate independent claims 1 and 6 as amended as well as claims 2, 4-5, 7-12, 14-15 and 17 which depend therefrom. Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 3, 13 and 16 have been rejected under 35 U.S.C. § 103 as unpatentable over Lindholm in view of "Improving Code Density Using Compression Techniques" by Lefurgy et al. The Office Action relies on Lefurgy et al. to disclose the branch-less program code unit and compression ratio features recited in these dependent claims. This rejection is respectfully traversed. Even if the references were combined as suggested, the combination does not teach or suggest each of the claim elements.

As claims 3, 13 and 16 require all the limitations of parent claim 1, it is submitted that the dependent claims are also distinguishable from Lindholm. In addition, regarding the branch-less program code unit, Lefurgy is directed to a different problem, which is the difficulty of compressing a branch instruction itself. Lefurgy does not describe or suggest the concept of defining program code compression units based on the presence of a branch instruction. Similarly, regarding the compression ratio features, Lefurgy does not describe or suggest the use of compression ratio as one of the run-time compression criteria. Neither Lindholm nor Lefurgy

et al. disclose or suggest the overwriting of expanded code as explained above. Reconsideration and withdrawal of the rejection of claims under 35 U.S.C. § 103 are respectfully requested.

Conclusion

Accordingly, it is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully requests an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Richard E. Brown
Registration No. 47,453

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 REB:llg
Facsimile: 202.756.8087
Date: August 8, 2005

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